Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A computer implemented filtering method for decoding a digital signal from a frequency domain to a time domain, comprising:

inputting a digital signal;

a first step of multiplying an input data stream of the digital signal and a transformation matrix that is decomposed into a sparse matrix from an inverse MDCT transformation matrix to make an inverse MDCT transformation of the input data stream composed of a plurality of data blocks, and having a smaller size than the inverse MDCT transformation matrix, to generate an output data stream composed of a plurality of data blocks;

a second step of storing predetermined data contained in each data block of the output data stream; and

a third step of generating a digital signal in the time domain on the basis of each data block generated in the first step and the predetermined data stored in the second step in processing the data block in the first step, and

outputting the digital signal in the time domain generated in the third step,

wherein the third step includes determining side information including information regarding decoding of the data block, and switching a processing method used for generating the digital signal in the time domain on the basis of the side information;

the first step includes a fourth step of making a DCT (Discrete Cosine Transform)-IV transformation process for each data block of the input data stream;

the second step includes a fifth step of storing a part of a process result of each data block at the fourth step that is used in processing the data block at the fourth step, and

the third step further comprises:

a sixth step of folding back and expanding a part of the process result of each data block in the fourth step other than the part of the process result stored in the fifth step and multiplying the expanded data by a predetermined window to generate a first process result, and folding back and expanding a part of the data block at the sixth step that is stored in the fifth step and multiplying the expanded data by a predetermined window to acquire a second process result, and

a seventh step of adding the first and second process results acquired in the sixth step.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) The filtering method according to ~~claim 2~~claim 1, wherein the third step of switching the processing method includes switching, in the sixth step, the predetermined window by which each data block is multiplied, on the basis of the side information including the information regarding the decoding of the data block.

5. (Previously Presented) The filtering method according to claim 1, wherein in the first step, the output data stream is generated by matrix transformation on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{IV} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x, and C_N^{IV} is a DCT-IV transformation matrix represented by the following expression,

$$\left[C_N^{IV}\right]_{m,n} = \cos\left[\frac{\left(m + \frac{1}{2}\right)\left(n + \frac{1}{2}\right)\pi}{N}\right], 0 \leq m, n \leq N - 1$$

where N is the number of data contained in x.

6-8. (Canceled)

9. (Currently Amended) A filtering apparatus for decoding a digital signal from a frequency domain to a time domain, comprising:

transformation means for multiplying an input data stream of the digital signal and a transformation matrix that is decomposed into a sparse matrix from an inverse MDCT (Modified Discrete Cosine Transform) transformation matrix to make an inverse MDCT transformation of the input data stream composed of a plurality of data blocks, and having a smaller size than the inverse MDCT transformation matrix, to generate an output data stream composed of a plurality of data blocks;

memory means for storing predetermined data contained in each data block of the output data stream; and

digital signal output means for generating and outputting the digital signal in a time domain on the basis of each data block contained in the output data stream and data of the predetermined data in each data block stored by memory means,

wherein said digital signal output means determines side information including information regarding decoding of the data block, and switches a processing method used for generating the digital signal in the time domain on the basis of the side information;

said transformation means makes the DCT (Discrete Cosine Transform)-IV transformation process for each data block of the input data stream;

said memory means stores a part of a process result of each data block of the DCT-IV transformation process that is used in processing the data block; and

said digital signal output means further comprises:

multiplication means for folding back and expanding a part of the process result of each data block of the DCT-IV transformation process other than the part of the process result stored in said memory means and multiplying the expanded data by a predetermined window to generate a first process result, and folding back and expanding a part of the data block that is stored in said memory means and multiplying the expanded data by a predetermined window to generate a second process result; and

addition means for adding the first and second process results generated by said multiplication means.

10. (Canceled)

11. (Canceled)

12. (Currently Amended) The filtering apparatus according to ~~claim 10~~claim 9, wherein said multiplication means switches the processing method by switching the predetermined window by which each data block is multiplied, on the basis of the side information including the information regarding decoding the data block.

13. (Previously Presented) The filtering apparatus according to claim 9, wherein said transformation means generates the output data stream by matrix transformation on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{IV} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x, and C_N^{IV} is a DCT-IV transformation matrix represented by the following expression,

$$\left[C_N^{IV}\right]_{m,n} = \cos\left[\frac{\left(m + \frac{1}{2}\right)\left(n + \frac{1}{2}\right)\pi}{N}\right], 0 \leq m, n \leq N - 1$$

where N is the number of data contained in x.

14-16. (Canceled)